

FORCES OF NATURE: WEATHER !!

Self-Paced Study

The video clips referenced in this packet can be viewed during class by accessing the T: drive. Go to the folder (Brighton, A. OR Cipriano, H) and click on the Outbox where you will find this worksheet and a document with all the links to video files for each type of natural disaster.

Most of the questions, diagrams, and tables can be completed by researching at the National Geographic website: www.nationalgeographic.com/forcesofnature

At the website you will see symbols representing the following natural disasters:



TORNADOES



HURRICANES

For each disaster there are tabs for three folders: **LAB**, **MAP**, and **CASE STUDIES**. Make sure you go to the correct webpage for each part of the packet.

You may record your answers on the printed version of this activity OR you may open this activity from the Outbox and type your answers onto the sheet. Be sure to **SAVE** it in your documents folder if you type it, and **SAVE OFTEN!!!**

TORNADOES

Open the site: www.nationalgeographic.com/forcesofnature and click on  TORNADOES

View the video: [National Geographic Tornadoes 101](#) (2:46)

Lab page 1

1. What is a tornado?

2. Which state holds the record for the most annual tornadoes in the US?

3. What are waterspouts?

Lab page 2

4. What causes tornadoes?

5. What is tornado alley?

6. When during the year do most tornadoes occur?

7. When during the day do most tornadoes form? Why?

Click on **NEXT** and watch the winds cause a tornado.

8. List the steps in the formation of a tornado.

View the video: [National Geographic Tornado Science](#) (2:49)

Lab page 3

9. List three weather conditions that often accompany tornadoes.

10. Describe an average tornado in terms of size and speed.

11. What limits scientists' ability to measure a tornado?

Click on **SEE TORNADO DAMAGE** and slide the slider to see how the Fujita Scale measure's a tornado's intensity.

RATING	WIND SPEED	BUILDING DAMAGE	OTHER DAMAGE
F0			
F1			
F2			
F3			
F4			
F5			

Lab page 4

When you first click on page 4, watch the tornado video.

12. How much damage do tornadoes do annually in the US?
13. What causes the most fatalities in a tornado?
14. How has the number of fatalities been reduced?

Lab page 5

When you first click on page 5, watch the satellite image.

15. What is Doppler radar? How has it helped scientists protect people?
16. What is the difference between a tornado watch and a tornado warning?

Lab page 6: Create a Tornado. Record the conditions that cause tornadoes.

Air Mass 1	Air Mass 2	Pressure	Winds

Create two tornadoes. Record the intensity according to the Fujita Scale.

Tornado	Fujita Scale Rating	Damage
1		
2		

View the video: [National Geographic Tornado Montage \(1:22\)](#)

Click on the **MAP** tab. Check the VIEW ALL DISASTERS box and the VIEW ALL DATES box.

Click on the **CASE STUDIES** tab. Read the description and view the photos of each tornado.

Choose 3 cases and fill in the information boxes below.

CASE/date	Fujita rating	Fatalities and Injuries	Damage

17. Write about the importance of early warning. Describe how early warning can save people and how the absence of warning causes greater destruction. Use examples from the case studies you read.

If you have time, check out the Photo Gallery. There are some pretty amazing pictures in there.

HURRICANES

Open the site: www.nationalgeographic.com/forcesofnature and click on  HURRICANES

View the video [National Geographic Hurricanes 101](#) (2:51)

Lab page 1

1. What is a hurricane?

2. What is the difference between a hurricane, a cyclone, and a typhoon?

Lab page 2

3. What is the progression of storms leading to a hurricane?

Click **NEXT** and zoom in on a hurricane. Watch how it formed. Describe the three parts.

Click **NEXT** and zoom in on a hurricane. Watch how it formed. Describe the three parts.

Hurricane Part	Description
Eye	
Eye Wall	
Feeder Bands	

Lab page 3

4. How does a Northern Hemisphere hurricane differ from one in the Southern Hemisphere?

5. Is the hurricane shown in the 3-D model from the Northern or Southern Hemisphere?

Lab page 4

6. What is the most dangerous part of a hurricane?

Click on **CHANGE THE INTENSITY** to see the Saffir-Simpson scale that measures a hurricane's intensity.

Saffir-Simpson Category	Winds	Storm Surge	Damage
Category 1			
Category 2			
Category 3			
Category 4			
Category 5			

Lab page 5

Watch the video that shows the high winds, rains, storm surge and flooding associated with a hurricane.

7. What are some effects of high winds?

8. What are some effects of a storm surge?

9. What are some effects of flooding?

Lab page 6

Watch the satellite radar images.

10. How do the forecasters at the National Hurricane Center track storms and predict hurricanes?

11. What is the difference between a hurricane watch and a hurricane warning?

Lab page 7: Create a Hurricane

12. What conditions create the right atmosphere for a hurricane happen?

Ocean Temperature	
Humidity	
Pressure	

Create two different hurricanes. Map the path and record the category of each one.



Intensity:
Top Speed:
Danger:



Intensity:
Top Speed:
Danger:

Click on the **MAP** tab. DO NOT check the VIEW ALL DISASTERS box. Focus only on the hurricanes.

Use the slider to see hurricanes recorded year by year, then click on the **VIEW ALL DATES** box to see all.

Hurricane Katrina occurred after this website was produced.

Click on **CASE STUDIES**.

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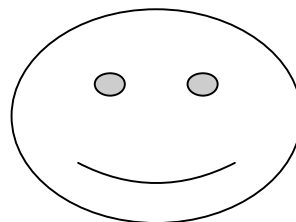
Read the descriptions and look at the photos and videos of each hurricane. Choose **THREE** hurricanes **AND Katrina** to describe below.

Hurricane	Location	Date	Category at Landfall	Describe the Damage
Katrina				

View the video: [National Geographic How Katrina Formed](#) (3:00)

Use this website <http://www.katrina.noaa.gov/> to find information about Hurricane Katrina.

Interesting Sites to Visit When you are finished:



Inside the Tornado: <http://video.nationalgeographic.com/video/player/environment/environment-natural-disasters/tornadoes/inside-the-tornado.html> (4:19)

(Saved to T:drive, Cipriano, Outbox, WeatherWebquest)

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Website Links:

TORNADOES:

Forces of Nature Tornadoes: <http://environment.nationalgeographic.com/environment/natural-disasters/forces-of-nature/>

Tornadoes 101 Video: <http://video.nationalgeographic.com/video/environment/environment-natural-disasters/tornadoes/tornadoes-101/>

Tornado Science: <http://video.nationalgeographic.com/video/environment/environment-natural-disasters/tornadoes/tornado-science/>

Tornado Montage: <http://video.nationalgeographic.com/video/environment/environment-natural-disasters/tornadoes/tornado-montage/>

HURRICANES:

Forces of Nature, Hurricanes: <http://environment.nationalgeographic.com/environment/natural-disasters/forces-of-nature/>

Hurricanes 101: <http://video.nationalgeographic.com/video/environment/environment-natural-disasters/hurricanes/hurricanes-101/>

How Hurricane Katrina Formed:
<http://video.nationalgeographic.com/video/environment/environment-natural-disasters/hurricanes/katrina-formation/>

Hurricane Katrina Information: <http://www.katrina.noaa.gov/>

Inside the Tornado: <http://video.nationalgeographic.com/video/player/environment/environment-natural-disasters/tornadoes/inside-the-tornado.html> (4:19)